

Appl. No. 10/030,867
Amdt. Dated October 12, 2004
Reply to Office Action of September 1, 2004

Attorney Docket No. 81839.0105
Customer No.: 26021

REMARKS/ARGUMENTS

Claims 1-5 are pending in the Application. In response to statements made in the Advisory Action of September 1, 2004, Applicant is amending claim 4. As so amended, claim 4, and claims 1-3 and 5 which depend, directly or indirectly, from claim 4 are submitted to clearly distinguish patentably over the prior art. No new matter is involved.

On August 16, 2004, Applicant filed a Response to Final Office Action in which the patentability of claims 1-5 is argued. In response, an Advisory Action issued on September 1, 2004. The Advisory Action maintains that Applicant's Response to Final Office Action of August 16, 2004 does not place the Application in condition for allowance because "heating from below was an obvious way for melting Si. Also, the throughput would have been increased with no solidification of raw material in the crucible between pulling cycles. The argument of hindsight reasoning is not persuasive in that the motivation of more product made is hardly unobvious to one of ordinary skill. The argument that Ito et al. teaches only melting the raw material after charging is not persuasive. Ito fully melts the charge after charging but does not rule out molten remnant raw material in the crucible from previous pulling cycles."

In response thereto, and in conjunction with the filing of a Request for Continued Examination (RCE), Applicant is amending claim 4 herein so that the claims clearly distinguish patentably over such art. More specifically, claim 4 is being amended herein to add thereto the language "and the electric power supplied to the subsidiary heating means is increased according to the introduction of the raw material". This addition to claim 4 is supported by lines 15-17 of page 21 of the specification. As described therein, when the raw material is additionally introduced, if the electric power supply to the subsidiary heater is increased

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according to the introduction of the raw material, decrease in the temperature of the melt (i.e. solidification of the melt) and deformation and degradation of the crucible can be more effectively prevented. This is further described at lines 6-26 of page 21 of the specification.

Therefore, as amended herein, claim 4 defines a method for growing a semiconductor single crystal according to the Czochralski method utilizing an apparatus for producing a semiconductor single crystal having a crucible to be charged with a raw material, a heater surrounding the crucible, pulling means for bringing a seed crystal into contact with a melt contained in the crucible and growing a single crystal and a metal chamber for accommodating the foregoing members. As further set forth in claim 4, the apparatus is provided with subsidiary heating means below the crucible, and after a grown single crystal is detached from the melt and taken out from the apparatus for producing a crystal, a raw material is newly added to the raw material remained in the crucible and melted. When a seed crystal is brought into contact with the melt to pull a single crystal again, the crucible is heated by the heater surrounding the crucible and the subsidiary heating means so that the raw material melt should not be solidified at least for a period from the point of the detachment of the single crystal ingot to the point of complete melting of the raw material in the crucible including the raw material newly added thereto. As further defined in claim 4 as amended, "the electric power supplied to the subsidiary heating means is increased according to the introduction of the raw material".

Therefore, claim 4 is submitted to clearly distinguish patentably over the prior art. Claims 1-3 and 5 depend, directly or indirectly, from and contain all of the limitations of claim 4 so that such claims are also submitted to distinguish patentably over the art.

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In conclusion, claims 1-5 are submitted to clearly distinguish patentably over the prior art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

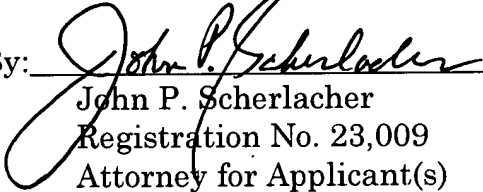
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: October 12, 2004

By: _____


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